View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Elsevier - Publisher Connector

Lipid-RX at D/C										

	Baseline (B)	568	75.0 %	587	76.0 %	600	71.5 %	771	51.5 %	**
	Q5 and over	591	87.3 %	586	86.7 %	613	81.2 %	947	68.4 %	**

	Delta (Q5-B)±SE	12.3±2.28 %**	10.7±2.25 %**	9.74±2.43 %**	16.9±2.35 %**	

**: P < 0.01; * 0.01 < P < 0.05; NS: not statistically significant.
At baseline older patients' (> or = to75) adherence to discharge interventions was consistently lower. By Q5-Q7 intervention rates significantly increased for all age groups except ACE use. The adherence differences between the youngest and oldest patients was eliminated for B-blockers and narrowed for ASA, Smoking Cessation, and Lipid therapy.
Conclusion: Preliminary observations from GWTG-CAD suggest that a comprehensive hospital-based continuous quality improvement program can improve care for patients of all ages and narrow the age related treatment gap in secondary prevention.

Noon

1059-28 Intensive Aerobic Physical Training Decreases Age-Related Decline of Left Ventricular Diastolic Function

Zoran B. Popovic, Armin Arbab-Zadeh, Allen Borowski, Erika Dijk, Neil L. Greenberg, Mario Garcia, Benjamin D. Levine, James D. Thomas, Cleveland Clinic Fondation, Cleveland, OH, Presbyterian Hospital of Dallas, Dallas, TX

Aging decreases left ventricular (LV) relaxation and impairs early LV filling. It is unknown if intensive aerobic physical training may affect this process. **Methods:** We studied a group of Fit (n = 12, 6 females, age 68 ± 3 years; weekly activity 32 ± 10 miles of running, or swimming or cycling equivalent) and Sedentary (n = 13, 6 females, age 70 ± 4 yrs; weekly activity <90 minutes of endurance exercise) healthy volunteers older than 65 years. Simultaneous Swan-Ganz catheter pulmonary capillary wedge pressure (PCW) measurements and echocardiographic studies were performed at baseline and after infusion of 10 ml/kg of saline. At both stages, myocardial relaxation velocity (E_m) was measured by Doppler Tissue Imaging at the lateral side of the mitral annulus, while early intraventricular pressure gradient (IVPG) was calculated by applying Euler's equation to space-time velocity map obtained from the color M-mode of the mitral inflow. **Results:** PCW and IVPG were similar in 2 groups at baseline (see Table). After saline infusion, Fit group had lower PCW but higher IVPG values than Sedentary group. E_m was higher in Fit group both at Base and after Saline. **Conclusions:** Fit older subjects more easily accommodate preload increase. Intensive aerobic physical training may blunt impairment of relaxation (assessed by E_m) and early filling (assessed by IVPG) that occurs during aging.

	PCWP (mmHg)		IVPG (mmHg)		E_m (cm/s)	
	Base	Saline	Base	Saline	Base	Saline
Fit	8±1	13±2	1.1±0.4	1.5±0.6	13.7±2.4	13.5±1.8
Sedentary	9±2	16±3	1.1±0.5	1.1±0.5	9.8±2.2	10.9±2.2
p Value	p = NS	p = 0.02	p = NS	p = 0.05	p < 0.01	p < 0.01

Noon

1059-29 Clinical Outcomes of Elective Contemporary Percutaneous Coronary Interventions in Octogenarians: Insight From the Blue Cross Blue Shield of Michigan Cardiovascular Consortium

Sanjaya Khanal, Dean E. Smith, David Share, Julius Gardin, Michael Lauer, Eva Kline-Rogers, Mauro Moscucci, Henry Ford Hospital, Detroit, MI, University of Michigan, Ann Arbor, MI

Background: Older age has been shown to adversely affect clinical outcomes in patients with acute coronary syndromes (ACS). There is currently a paucity of data on the outcomes of elective percutaneous coronary interventions (PCI) in elderly patients.
Methods: We compared 1,503 octogenarians (>80 years old) with 16,515 patients <80 years old undergoing elective PCI in a regional multicenter registry of contemporary PCI. Clinical endpoints evaluated included in-hospital mortality and major cardiovascular events endpoint (MACE) defined as the composite of death, myocardial infarction, stroke and emergent bypass surgery within the same hospitalization.
Results: The octogenarian group had a higher percentage of women and a higher frequency of comorbidities (see table). In this group, PCI was associated with a higher risk of in-hospital death (0.60% vs 0.20%, p=0.002) and a non significant trend towards higher MACE (2.46% vs 1.84%, p=0.09). After adjustment for comorbidities, advanced age was no longer a significant predictor of in-hospital mortality (adjusted OR 2.0, 95% CI 0.93-4.4, p=0.07) or MACE (adjusted OR 1.1, 95% CI 0.78-1.60, p=0.5).
Conclusions: Although octogenarians undergoing elective PCI have significantly worse comorbidities than younger patients, their adjusted mortality and MACE rates are comparable. The overall low risk of morbidity and mortality observed in this study in octogenarians suggests that age by itself should not be a deterrent for elective PCI when indicated.

	Age 80+ years	Age <80 years	
Variable	N=1,503 (%)	N=16,515 (%)	p-value
Age (mean(SD))	82.9 (2.8)	62.5 (10.0)	NA
Female	49.9	31.2	<0.0001
PVD/stroke	27.1	17.3	<0.0001
Chronic Heart Failure	16.6	9.1	<0.0001
Significant Valve Disease	5.0	2.5	<0.0001
Outcomes (unadjusted):			
Nephropathy Requiring Dialysis	0.07	0.12	0.60
Vascular Complications	2.79	1.51	0.0002
Blood Transfusions	4.72	1.95	<0.0001
Emergent CABG	0.20	0.35	0.94
Stroke	0.20	0.10	0.28
MI	1.93	1.32	0.052
Death	0.60	0.20	0.002
MACE	2.46	1.84	0.09

Noon

1059-30 Effect of Nesiritide on Renal Function After Implantation of the AbioCor Total Artificial Heart

Reynolds M. Delgado, III, Branislav Radovancevic, Biswajit Kar, Yasmin Wadia, Nancy Scroggins, Timothy J. Myers, Igor D. Gregoric, O. H. Frazier, Texas Heart Institute/St. Luke's Episcopal Hospital, Houston, TX

Background: Endogenous B type natriuretic peptide (BNP) is produced in the cardiac ventricles. After cardiectomy and implantation of a total artificial heart, levels of BNP may decrease dramatically from high levels preoperatively in patients with heart failure. We hypothesized that abrupt withdrawal of endogenous BNP may adversely affect renal function and volume homeostasis given its known effects. In addition, the effects of exogenous BNP (nesiritide) in these patients are unknown. **Methods:** We reviewed urine output (UOP), BUN and creatinine in three patients for 10, 16, and 20 days after cardiectomy and implantation of the AbioCor total artificial heart. Nesiritide was started intra-operatively in all patients and varying doses were used during the observation periods based on renal function and UOP. It was noted that early attempts to wean nesiritide resulted in a decrease in both renal function and UOP. All patients maintained a normal cardiac output and blood pressure during the observation periods. **Results:** Statistical analysis revealed a correlation coefficient of 0.81 in patient 1 with a p value of 0.004 between UOP and nesiritide dose. In patient 2 the correlation coefficient was 0.86 with a p value of 0.027. In patient 3 the correlation coefficient was 0.79 with a p value of <0.0001. Similar correlations were seen with BUN and creatinine. BNP levels after withdrawal of nesiritide were low but did not go to zero, even weeks later. **Conclusions:** Abrupt withdrawal of BNP early after cardiectomy and implantation of a total artificial heart in patients with end-stage heart failure appears to have a deleterious effect on renal function, despite a normal cardiac output and blood pressure. Supplementation of exogenous BNP may be beneficial in this unique clinical situation and withdrawal should be done slowly. Low levels of BNP are produced in tissue other than that of the cardiac ventricles.

Noon

1059-31 Stenting of the Arterial Duct and Banding of the Pulmonary Arteries: Basis for Univentricular or Biventricular Repair

Dietmar Schranz, Ina Michel-Behnke, Klaus Valeske, Juergen Bauer, Karl-Juergen Hagel, Hakan Akintuerk, Pediatric Heart Center, JLU Giessen, Giessen, Germany

Background: The management of newborns with multiple left heart hypoplastic or obstructive lesions is complex. Surgical strategy is rarely reversible. Stent placement in the arterial duct combined with bilateral banding of the pulmonary artery branches offers the basis for an extended surgical strategy in newborns with hypoplastic left heart obstructive lesions.
Methods: Percutaneous ductal stenting and surgically performed bilateral pulmonary artery banding was performed in all patients, and atrial septotomy by balloon dilatation as required. Neoaortic reconstruction and establishment of a bi-directional cavopulmonary connection (BCPC) was performed during a single operation as the palliative repair (PR). The biventricular repair (BR) included reconstruction of various aortic arch lesions in part combined with VSD repair or Ross-Konno procedures, but all with bilateral debanding and removal of the duct stents.
Results: Twenty seven newborns with various forms of left heart obstructive lesions, and duct dependent systemic blood flow were treated. One patient died immediately after the percutaneous ductal stenting. One patient died in association to the surgical approach of bilateral pulmonary banding. Stent and ductal patency were achieved for up to 331 days. Four patients underwent heart transplantation, two patients died on the waiting list. Eleven patients had a palliative one stage procedure with reconstruction of the aortic arch and bi-directional cavo-pulmonary connection at the age of 3.5-6 months. There was one death. Two patients are still awaiting this approach. Six patients received biventricular repair. In one, biventricular repair will soon be provided. Conclusions: Stenting of the arterial duct and banding of the pulmonary arteries offer the basis for an extended

surgical strategy in newborns with multiple left heart obstructive lesions. Particularly patients with moderate hypoplasia of the left ventricle and antegrade blood flow in the ascending aorta might have the opportunity to get biventricular repair after some months.

Noon

1059-32 **Failure to Rise Stroke Volume in Patients With Transposition of the Great Arteries After Atrial Switch Operation Is Due to Fixed Venous Return**

Alfred Hager, John Hess, Sven Michels, Michael Hauser, Markus Schwaiger, Heiko Stern, Deutsches Herzzentrum München, TUM, München, Germany, Klinikum rechts der Isar, TUM, München, Germany

Background: Patients with transposition of the great arteries after atrial switch operation lack the ability to rise stroke volume during exercise. It is unclear whether this is due to a failure of the right ventricular myocardium that life long has to tolerate systemic ventricular load, or whether this is due to the fixed venous return through the non-compliant surgical baffles in the atrium.
Patients and Methods: Twelve patients (age 21.1 ± 3.8 years, 3 females) after atrial switch operation (TGA) were compared to 8 patients (age 34.5 ± 17.4 years, 2 females) with congenitally corrected transposition of the great arteries (CCTGA) who have the burden of a systemic load on the right ventricle in the absence of atrial baffles. Both groups did not differ significantly concerning age, weight, length, body mass index, peak oxygen uptake in a cardiopulmonary exercise test, and quality of life scales obtained from the SF-36 questionnaire did not differ significantly.
In all patients stroke volume was measured in the aorta with velocity encoded cine magnetic resonance imaging both at rest and with 10 µg/kg/min dobutamine. Right ventricular endsystolic and enddiastolic volume was measured from ECG triggered balanced fast field echo sequences.
Results: Although both groups increase cardiac output with dobutamine similarly, CCTGA patients could raise aortic stroke volume by a factor of 1.25 ± 0.30, whereas TGA patients failed to do so (factor 1.00 ± 0.15, p = 0.047). TGA patients had to increase heart rate more than those with CCTGA (factor 1.52. ± 0.26 versus 1.23 ± 0.20, p = 0.020). This failure to rise stroke volume in TGA patients was due to a decrease in enddiastolic right ventricular volume (p=0.012), despite an increase of right ventricular ejection fraction (p=0.010). In contrast CCTGA had no change in enddiastolic volume (p=0.327) and also an increase in ejection fraction (0.036).
There were no differences between Mustard or Senning repair in the TGA group.
Conclusion: The well known inability of patients after atrial switch operation to raise their stroke volume during stress is due to a fixed venous return through the surgically created atrial baffle and not due to right ventricular muscle failure.

Noon

1059-33 **Left Atrial Enlargement as a Marker for Cardiac Disease: Teaching One Simple Measure for Point-of-Care Ultrasound Screening**

Bruce J. Kimura, Steven J. Fowler, Todd S. Fergus, Joshua J. Minuto, Anthony N. DeMaria, Scripps Mercy Hospital, San Diego, CA, University of California, San Diego, CA

BACKGROUND: Left atrial(LA) enlargement is associated with many cardiac disorders, is readily detectable by "point-of-care" ultrasound examination, and could identify those patients who require further evaluation. To better understand the potential of this single measurement for screening, we first evaluated LA size and its relation to the presence of any significant echo finding and then assessed a simple method to teach physicians unfamiliar with echo to detect LA enlargement. METHODS: We analyzed 500 consecutive outpt echo studies for LA dimension (by parasternal M-mode) and whether the echo contained any significant finding. The prevalence of, and likelihood ratios(LR) for, an abnormal echo were calculated at increasing thresholds of LA size. Subsequently, the ability of resident physicians (n=26) to use a 40mm circular marker to assess the LA size was tested on video-looped parasternal images from 13 pts. RESULTS: Of 500 echo studies, LA size ranged 24-69mm, median 38mm. Prevalence of an abnormal echo was 43% overall and higher when LA>40mm v. LA<=40mm (69% v. 29%, p<0.05). In the 13 test cases, resident sensitivity, specificity, and accuracy was 65%, 96% and 79% for LA sizes >40mm. For LA size subgroups of 30-40mm (n=6), 41-50mm(n=4) and 51-61mm (n=3), accuracy was 96%, 47%, and 87%. CONCLUSION: The likelihood of a cardiac abnormality increases with LA size. Noncardiologists can be easily taught to discriminate LA sizes of clinical value using a simple instructional method.

LA Size Thresholds and Likelihood of Abnormal Echo

Threshold	LA<=30mm	LA<=40mm	LA>40mm	LA>50mm
N= (500)	56	322	178	30
%abnl echo	11%	29%	69%	97%
LR	0.16	0.55	2.9	4000

Noon

1059-34 **Transthoracic Echocardiography Is Superior to Transesophageal Imaging for Detection of Right to Left Atrial Shunting**

Ali A. Valika, Srihari Thanigaraj, Julio E. Perez, Washington University in St. Louis School of Medicine, Saint Louis, MO, Cardiology Division, St. Louis, MO

Background: Agitated saline contrast echocardiography can be carried out either with transesophageal (TEE) or transthoracic (TTE) echocardiography for detection of right to left atrial shunting due to atrial septal defects (ASD) or patent foramen ovale (PFO). TEE is considered to be superior, and therefore to obviate the need for TTE for this purpose, but direct comparative studies are scarce.
Methods: Echocardiograms of 94 patients (38 Men; 56 Women; Age 18 - 84 Years; Mean Age 45 Years) who underwent a saline contrast study with both TEE and TTE during an 18-month study period were reviewed. TEE and TTE were performed less than 24 hours apart in 87 patients, and within a month in seven patients. All the studies were done both at rest and following the Valsalva maneuver. In 78 patients the studies were performed to exclude shunts in the setting of transient ischemic attack, strokes, or peripheral embolic events. In seven patients saline contrast was done to exclude shunt secondary to pulmonary hypertension. In the remaining nine patients the study was done due to right heart enlargement or based on clinical suspicion for right to left shunt.
Results: In 42 patients a right to left shunt was demonstrated on either TEE, TTE or both (35 had PFO, 5 had secundum ASD and 2 had sinus venosus ASD). In 19 patients both TEE and TTE disclosed right to left shunt, whereas in 21 patients a shunt was noted on TTE only (16/21 demonstrated atrial shunt only after a Valsalva maneuver) while two patients had shunt by TEE only. Both TEE and TTE identified shunts in all patients with ASD. Detection of PFO was better with TTE (33/35 or 91%) than with TEE (only 12/35 or 34 %). In 52 of 94 patients there was no evidence of right to left shunt either by TEE or TTE.
Conclusion: A TTE is the preferred approach for detection of right to left atrial shunt related to PFO as compared to a TEE, and both techniques are comparable in detection of shunting due to ASD. Inability to perform an effective Valsalva maneuver during TEE and relatively lower right heart pressures related to sedation and fasting state prior to TEE may explain the differences.

Noon

1059-35 **Echocardiograpic Characteristics of Unrecognized Myocardial Infarctions in a Population Based Study**

Khawaja A. Ammar, Saquib Samee, Lynn Urban, Ravindra Makwana, Douglas Mahoney, Jan A. Kors, Margaret Redfield, Steve Jacobsen, Richard Rodeheffer, Mayo Clinic, Rochester, MN, Olmsted Medical Center, Rochester, MN

Background: Unrecognized Myocardial Infarction (UMI), in patients who do not seek medical attention, is commonly diagnosed by a surveillance ECG, and has not been studied by echocardiography. UMI has been shown to have a similar prognosis to recognized myocardial infarction (RMI). Therefore we examined the hypothesis that UMI and RMI patients would exhibit similar degrees of structural ventricular damage as assessed by echocardiography.
Methods: A population based random sample of 2042 Olmsted County residents, age ≥ 45 years, were studied by chart abstraction, ECG and echocardiogram. UMI (n=80) were diagnosed if ECG-MI criteria were met without the history of a documented myocardial infarction. RMI (n=101)were diagnosed if Gillum criteria were met. Echocardiographic data included Left Ventricular End Diastolic Dimension (LVEDD), Left Atrial Dimension (LAD), Left Ventricular Mass (LVMass), LV enlargement (LVE), Right Ventricular Enlargement (RVE), Ejection Fraction (EF), Regional Wall Motion Abnormalities (RWMA), Diastolic Dysfunction (DD) and echocardiographic significant Valvular Heart Disease (VHD).
Results: In bivariate analyses, RMI was markedly different from controls in terms of having higher LVEDD (5.4cm vs 4.9cm), LAD (4.4 cm), LVMass (222 g vs 182 g), lower mean EF (55 vs.63; O.R for EF <40=11), higher prevalence of DD (O.R.4), RWMA (O.R. 29), VHD (O.R.4), LVE (O.R. 10) and RVE (p<0.0001 for all). By contrast, UMI was different from controls only in terms of having larger LAD (4.3 cm vs 3.9cm) and lower mean EF (60 vs 63) at p<0.05. After multivariable adjustment for age, sex, obesity, diabetes, hypertension and smoking, UMI patients were not significantly different from controls whereas RMI group continued to exhibit more abnormalities in LVE, EF, RWMA and LVMass (p<0.0001).
Conclusion: Wheras RMI patients manifest widespread structural abnormalities, UMI patients show only small differences from controls. These findings support the concept that non-recognition may be related to lesser degrees of ventricular injury. The similar prognosis after UMI and RMI cannot be explained by similar degrees of ventricular damage. Other explanatory factors will need to be identified.

Noon

1059-36 **Quantitative Regional and Global Right Ventricular Geometry in Health and Disease by Real-Time 3-D Echocardiography**

Patrick Coon, Nichole Bruno, Jude Dalton, Luqin Cao, Julie Wendell, Amy Loyd, Zheng Liu, Jagat Narula, Mani Vannan, Drexel University College of Medicine, Philadelphia, PA

Background: RV shape has been limited by 2-D methods, temporal and spatial artifacts in reconstructive data and the lack of quantitative regional and global measures of geometry. We describe an approach to quantify 3-D regional and global RV shape by using a shape-fitting algorithm. **Methods:** Real-Time TTE 3-D (SONOS 7500) was done in 43 patients with hypertensive RV disease and 22 individuals with normal RV. A full-volume